Part 3 (September).—Prof. A. Wrzesniowski (Warsaw), Contributions to the natural history of the infusoria, 57 pages, 3 plates, containing descriptions of many new species, and discussions on *Oxytricha*, *Epistylis flavicans*, *Ophrydium versatile*, &c. —Marie von Chauvin, on the power of adaptation of the larvæ of *Salamandra atra.*—Ernst Zeller, on the reproduction of opalina (parasitic on batrachians), 2 plates.—W. Kurz, studies on the lernæopods, 3 plates.

SOCIETIES AND ACADEMIES

London

Entomological Society, October 3.—Prof. J. O. Westwood, M.A., F.L.S., president, in the chair.—Mr. W. L. Distant exhibited a specimen of the ravages of *Dermestes vulpinus* in a cargo of dried hides from China. On the arrival of the cargo in this country it was found to be swarming with the insect in all stages.—Mr. McLachlan also exhibited a piece of wood which had formed part of a case containing hides from Shanghai and which was riddled with borings of the larvæ of the same insect. The president remarked that his attention had been directed some years ago to the depredations of this larva in a cargo of cork.—Prof. Westwood exhibited a drawing of the pupa of a species of *Anabolia* which swam about in water like a *Notonecta* and was remarkable for using its middle legs as swimming apparatus. Prof. Westwood also made remarks upon the homology of the mouth organs in the pupæ of Trichoptera and suggested that the mandibles of the pupæ (which are aborted in imago) are for the purpose of eating their way out of the cases in which they undergo their transformation.—The president next exhibited a small lepidopterous insect from Lake Nyassa with a pupa case of a species of *Tachina* from which it was supposed to have been bred.—Prof. Westwood next called the attention of the Society to the remarkable lepidopterous larva attached to the homopterous larva which had been handed to him by Mr. Wood-Mason at the last meeting and stated his belief that the relation of the Lepidopteron to the Homopteron was probably one of true parasitism, the former (*Epipyrops*) feeding on the wax secreted by the latter. Mr. Wood-Mason stated that he was inclined to consider the *Epipyrops* larva as a messmate of the Homopteron having attached itself to the latter for the sake of being carried about to its food-plant and having covered itself with the waxy secretion for the purpose of rendering itself inconspicuous to its foes.—Prof. Westwood then exhibited a moth from Brazil which had been bred from a caterpillar found among the hairs of some animal.—The president finally read a note from Albert Müller announcing the formation of an entomological station at Basle.—Mr. Meldola announced that the Longicorn beetle received from Birkenhead and exhibited at the last meeting had been identified by Mr. C. O. Waterhouse as *Monohammus titillatus*, Fab., a species inhabiting the United States. Mr. Meldola also exhibited a collection of Lepidoptera formed by him in 1875 in Ceylon and the Nicobar Islands.—Mr. H. Goss exhibited a series of *Lycæna Arion* taken in the Cotswolds which were remarkable on account of the small size of some of the specimens, about one-third being below the average size.—Mr. McLachlan read a paper on *Notiothauma Reedi*, a remarkable new genus and species of Neuroptera from Chili pertaining to the family *Panorpidæ*.—A paper was communicated by Mr. A. G. Butler on the Lepidoptera of the family *Lithosiidæ* in the collection of the British Museum.

Wellington

Philosophical Society, July 21.—Mr. W. T. L. Travers, F.L.S., president, in the chair.—The hon. Mr. Mantell read a paper by Mr. J. C. Crawford, F.G.S., on gold found in the rocks of the Tararua and Rimutaka ranges in the province of Wellington. Mr. Crawford had forwarded a specimen to Melbourne, and Mr. J. Chapman, the assayer to the bank of Victoria, had reported that the specimen was composed of sulphate of iron, and gold at the rate of 1 oz. per ton. The hon. Mr. Mantell said he would like some explanation regarding the presence of sulphate of iron. Dr. Hector stated that there must have been some mistake, probably iron bi-sulphide was meant. He reminded the society that a great deal had been done in prospecting the country referred to by Mr. Crawford, and that in 1869 he (Dr. Hector) had communicated to the society the results obtained. Eighteen analyses had been made of quartz specimens from reefs in the district; of these only six had proved auriferous, varying from mere traces up to 13 dwts. per ton of gold, the richest being from Wainuiomata, the same locality from which Mr. Crawford's specimen had come. In his former communication he had warned prospectors against the solid quartz reefs which traverse the sandstones and slate, as the gold at Makara and Terawiti appears to occur in jointed sandstones, chiefly as dendritic films.—Capt. Edwin, R.N., communicated a notice by Mr. J. F. Marten, of Russell, Bay of Islands, regarding the occurrence of the tidal wave which took place on May 11 last. Mr. Travers said he had observed this occurrence in Wellington harbour, and that he believed Dr. Hector had taken observations of the rise and fall. Some years ago a similar wave was observed in New Zealand, after which we had news of an earthquake in America, and no doubt the wave on May 11 last was due to a like cause.—Dr. Hector reported that tidal disturbance on May 11 had been observed on every part of the New Zealand coast, and also in Australia in the same manner, but not so intensely as the waves of August, 1868. The origin of the waves on that occasion was clearly traced to a great volcanic disturbance near the west coast of South America, and in this instance a violent convulsion has also been reported from that quarter as having occurred on May 10. We have not the full particulars yet, but if this date is correct the wave felt on our coast must have been due to a still earlier shock, perhaps in some other place, as it was first noticed at 5 A.M. on the 11th, corresponding to 1 P.M. of the 10th on the South American coast. From this date must be subtracted about seventeen hours for the time of transmission of the wave across the Pacific Ocean, which would require that the shock should have taken place about 8 A.M. on the 9th. This tends to confirm the belief that there is a periodicity in earthquakes, and that they occur independently at distant localities at nearly the same time. He observed that a writer in the last received number of NATURE notices this coincidence in reporting a sharp earthquake at Comrie, in Scotland, on May 11. At Napier, where the engineer of the harbour works, Mr. Weber, makes exact observations, the tides were disturbed from the 11th to the 19th. The position of Napier renders it peculiarly sensitive to oceanic oscillations. Thus on May 1 the highest sea ever experienced in Napier washed over the shingle spit and damaged the rails in front of the Court-house. This phenomenon was only local, and attributed to a long continuance of south-east wind. He called attention to a recent paper by Mr. Russell, the Government Astronomer at Sydney (*Journ.* Ast. Soc. N.S.W., 1876, p. 37), which states that the slightest earth shocks felt in New Zealand are nearly always recorded on the tide gauges in Sydney and Newcastle, and are most unaccountably coincident with abnormal readings of one of the thermometers in the Observatory. If we had well-placed tide-gauges on the New Zealand coasts it is probable the most interesting results would be obtained. Every addition to the observed facts bearing on this subject would be valuable. The investigation of earthquakes would be similar to that of the influence of sun-spots recently examined by Prof. Balfour Stewart, in so far that the release of prodigious latent energies might depend on very obscure and trivial exciting causes. Mr. Carruthers said he did not consider it necessary to suppose that seventeen hours must elapse before a tidal wave due to the same cause as the South American earthquake would reach New Zealand. He did not think the earthquake caused wave, but that both were due to the same cause. He thought earthquakes were locally intensified exhibitions of a great deep-seated movement of the floor of the ocean, and that if the floor were not in movement an earthquake, however violent, would be unable to propagate a wave for such distances as from America to New Zealand. The intensified action which so often shows itself in this part of South America he thought was due largely to the great bend made in the line of elevation of the Andes at this point, which had the effect of converting a deep-seated movement of the earth's crust into a violent crushing of the surface. Dr. Hector explained that the period of seventeen hours for the transmission of a wave across the Pacific Ocean was derived from observation in 1868, when the commotion of the sea extended not only to New Zealand and Australia, but to Japan, Sandwich Islands, and the Cape of Good Hope. He agreed that earthquakes were widespread phenomena locally intensified, but it is the strong local convulsion that originates the oceanic waves. Such waves could not keep pace with a tremor propagated through the solid floor of the ocean, which travels at six times greater speed and generates what is termed the *forced wave*. The ocean wave once generated would take its own time. Dr. Newman did not think we had

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yet sufficient data to decide on the subject. The depth of the ocean should be considered. He could not agree with Mr. Carruthers that earthquakes extended over so large an extent of the ocean bed. The president said that the works of Darwin, Humboldt, and Mallett on this subject, would be found interesting. He agreed with Dr. Hector that we must look outside our globe for the prime causes of such disturbances, such as sun-spots, influence of the moon, &c.—Before the close of the meeting, Dr. Hector drew attention to several exhibits on the table, more especially to an albino of the New Zealand crow (*Glaucopis wilsoni*), and to a Tui (*Prosthemadera tui*, Zel.) with brown plumage. A fine series of crustacea from the Californian coast, and a selection of the more interesting fossils obtained during the past year by the Geological Department, were also exhibited and explained.

Paris

Academy of Sciences, October 15.—M. Peligot in the chair.—The following papers were read:—On some applications of elliptic functions, by M. Hermite.—On the movements of the apsides of the satellites of Saturn and on the determination of the mass of the ring, by M. Tisserand.—On the non-transparence of incandescent iron and platinum, by M. Govi. He denies the assertion that iron raised to a red or white heat becomes transparent.—Employment of lime-water to fix fatty acids of feed-water of boilers in engines provided with surface-condensers, by M. Hetel. The fatty matters become fixed in insoluble combinations, so that the water reaching the boiler is neutral or even slightly alkaline, containing only a calcareous soap and free glycerine, which is inoffensive and non-adherent to the boiler.—On the ravages produced in the vines of Narbonnais by the disease of anthracnose, by M. Porte.—On the employment of colza and rape, sown in vineyards to preserve the vine from frost, by MM. Serrès and Rérat. These seeds are sown in October or November, and by May, when the frosts are most to be feared, the plants have grown to more than a metre in height, giving good protection. When the frost is fairly gone the rape or colza is cut and the vines then grow with more vigour.—Reply to a former note by M. Stephan on the discovery of the planet 174, by M. Watson.—On cases of reduction of Abelian functions to elliptic functions, by M. Hermite.—Formation of allylene at the expense of bromocitrapyrotartaric anhydride, by M. Bourgoin.—On dibromomethylcarbylamine, by M. Tcherniak.—Researches on the physical constitution of the blood corpuscle, by M. Bechamp. He has succeeded in demonstrating the separate existence of an enveloping membrane by nourishing the corpuscles in a solution of fecula. The membrane is thus made both more resistant to the action of water, and more visible, while retaining its osmotic properties. The effects obtained in thus treating the blood of duck, &c., are minutely described.—On the organic *débris* contained in the quartz and silex of Roannais, by M. Renault.—Researches on vegetable glycogenesis, by M. Jodin. *Inter alia*, the constant presence of certain sugars in all champignons, proves the independence of the glycogenic function, and the chlorophyllian function. Researches are desirable on the influences which cause the saccharimetric quantity in leaves to vary, and the nature of the relation between these variations and the exercise of the chlorophyllian function, &c.—Researches on fatty bodies introduced fraudulently into butter, by M. Husson.—Relation between barometric variations and the sun's declination, by M. Poëy. Low pressures follow exactly the course of the sun, while high pressures follow an opposite course. The observations were made at the Observatory of Havana.

Geneva

Society of Physics and Natural History, July 5.—M. Soret continued the account of his researches on the polarisation of quartz, carried on in conjunction with M. Ed. Sarasin. A first series of measurements of the solar light with a spectroscope having a fluorescent eye-piece, had been extended as far as the Fraunhofer line R. In the new series, and in order to carry further their observations on the ultra-violet part of the spectrum, they operated upon the light proceeding from a strong induction discharge issuing between two points of cadmium. They determined the rotatory power of the quartz for eight of the principal lines of the ultra-violet spectrum of that metal, for which M. Mascart has given the wave-lengths, and for two lines situated still farther beyond. Their experiments show that in these limits, much more extended, the law of Boltzmann is confirmed in a very satisfactory manner. It appears, however, necessary to add a third term to his formula.—Prof. Schiff communicated the results of his experiments on the contractions presented by the diaphragm after its nerves have been cut.—M. H. Fol described observations made by him on the origin of the follicle which surrounds the egg of ascidians. It has been wrongly supposed that the cellules of the follicles form part of the stroma of the ovary. The cellules originate in the interior of the young eggs, at the surface of the germinative vesicle, and traverse the whole thickness of the vitellus to reach the surface of the ovule and detach themselves from it. This example of so singular a mode of formation of the follicular cellules is unique, so far as known, in the animal kingdom.

August 2.—Major Ed. Pictet presented the hydrographic chart of the Lake of Geneva, in its south-west part, from its line Coppet-Hermance to the exit of the Rhône. The form of the bed of the lake is defined by equidistant curves of five metres, vertical distance. The work will be published as the first development of an old investigation by Sir H. de la Beche.—Prof. Colladon has investigated new cases of lightning-stroke, which has confirmed his former conclusions on the effects of lightning upon trees. One of the determining causes of a stroke of lightning on a tree is the neighbourhood of a spring or of a subterranean sheet of water. That cause acts more powerfully than the relative height of different trees. He shows that most of the metallic wires used as lightning conductors are too slender; he calculates that they ought to have a section of at least 500 square millimetres.

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